

Precalculus Worksheet
Section 4.7 – Inverse Trig Functions

Name _____
Period _____

Evaluate the given expression without the aid of a calculator.

1. $\sin^{-1}\left(\frac{1}{2}\right)$

2. $\cos^{-1}\left(\frac{1}{2}\right)$

3. $\tan^{-1}\left(\frac{\sqrt{3}}{3}\right)$

4. $\arccos\left(\frac{\sqrt{3}}{2}\right)$

5. $\arcsin\left(\frac{\sqrt{2}}{2}\right)$

6. $\arctan(1)$

7. $\arcsin^{-1}\left(-\frac{1}{2}\right)$

8. $\arccos\left(-\frac{1}{2}\right)$

9. $\arctan\left(-\frac{\sqrt{3}}{3}\right)$

10. $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$

11. $\sin^{-1}\left(-\frac{\sqrt{2}}{2}\right)$

12. $\tan^{-1}(-1)$

13. $\sin^{-1}0$

14. $\cos^{-1}0$

15. $\tan^{-1}(-\sqrt{3})$

16. $\arcsin(1)$

17. $\arccos(1)$

18. $\tan^{-1}0$

19. $\arcsin(-1)$

20. $\arccos(-1)$

Find the exact value without a calculator.

21. $\cos\left(\sin^{-1}\left(\frac{1}{2}\right)\right)$ 22. $\sin\left(\cos^{-1}\left(\frac{\sqrt{2}}{2}\right)\right)$ 23. $\sin^{-1}\left(\cos\left(\frac{\pi}{3}\right)\right)$

24. $\cos^{-1}\left(\sin\left(\frac{\pi}{6}\right)\right)$ 25. $\sin^{-1}\left(\sin\left(\frac{7\pi}{4}\right)\right)$ 26. $\arccos\left(\sin\left(\frac{\pi}{3}\right)\right)$

27. $\sin\left(\tan^{-1}(\sqrt{3})\right)$ 28. $\cos\left(\tan^{-1}(-1)\right)$ 29. $\tan^{-1}(\cos(\pi))$

Find an algebraic expression equivalent to the given expression.

30. $\tan\left(\arccos\left(\frac{x}{3}\right)\right)$ 31. $\sin(\arccos(x))$ 32. $\sin\left(\arctan\left(\frac{x}{2}\right)\right)$

Evaluate using your calculator to find the approximate value. Express your answer in degrees.

33. $\sin^{-1}(.8621)$ 34. $\tan^{-1}(.5893)$ 35. $\cos^{-1}(-.3218)$
36. $\arcsin(-.6821)$ 37. $\arctan(-1.6283)$ 38. $\arccos(.2814)$

Evaluate using your calculator to find the approximate value. Express your answer in radians

39. $\arcsin(.2618)$ 40. $\cos^{-1}(-.8090)$ 41. $\tan^{-1}(-1.7321)$